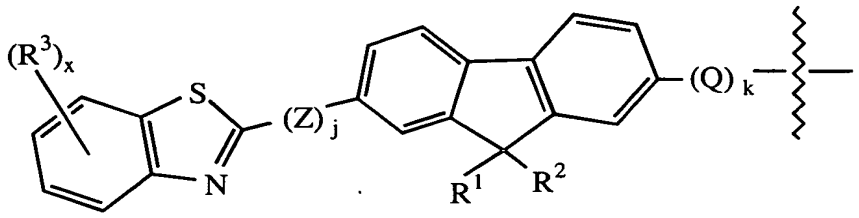
CLAIMS:

1. A polymer comprising 2-(7-benzothiazolyl-9,9-disubstituted fluorene) structural units of the formula



wherein R^1 and R^2 are each independently an alkyl group, an aralkyl group, an aryl group, or an $-Si(R)_3$ group wherein R is an alkyl group; R^3 is selected from the group consisting of an electron-donating substituent and an electron-withdrawing substituent; x has the value of from zero up to the number of hydrogens available for substitution on the aromatic ring; Z and Q are each independently a group which is in conjugation with both the fluorene group and the benzothiazole group; and the parameters j and k each independently have the value of 0-2.

2. The polymer of claim 1 wherein x is at least one and R^3 is alkyl; alkoxy; halogen, chloro, bromo, fluoro; nitrile or nitro.

3. The polymer of claim 1 wherein j or k, or both j and k have the value of 1, and Z or Q or both Z and Q are selected from the group consisting of phenyl, substituted phenyl, ethenyl, substituted ethenyl, and fluorenyl.

4. The polymer of claim 1 wherein R^1 and R^2 are each independently selected from the group consisting of phenyl, trialkylsilyl, trimethylsilyl, t-butyl, dimethylhexyl, ethylhexyl, n-octyl, and C_6-C_{32} alkyl optionally substituted with one or more groups selected from C_1-C_6 alkyl.

5. The polymer of claim 1 wherein x, j and k are zero, and R^1 and R^2 are the same.

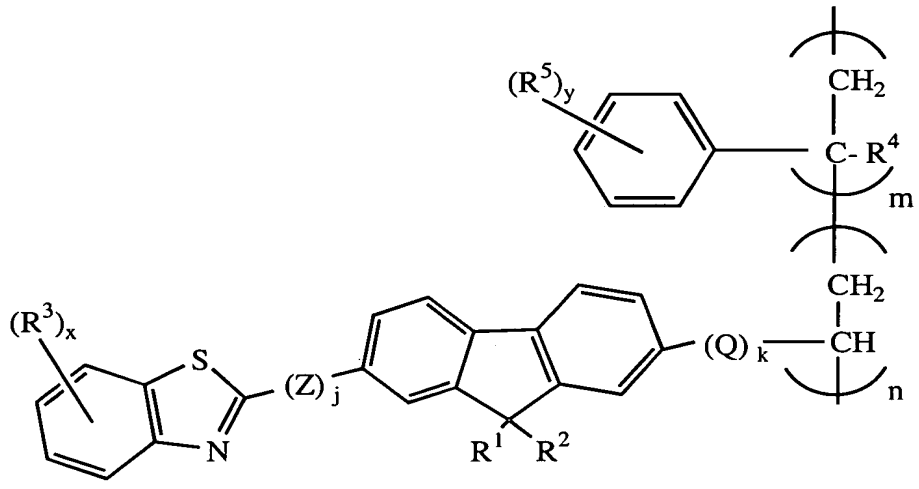
6. The polymer of claim 5 wherein R^1 and R^2 are selected from the group consisting of phenyl, trialkylsilyl, trimethylsilyl, t-butyl, dimethylhexyl, ethylhexyl, n-

octyl, and C_6-C_{32} alkyl optionally substituted with one or more groups selected from C_1-C_6 alkyl.

7. The polymer of claim 1 wherein the weight average molecular weight is in a range of about 4,000 and about 200,000.

8. The polymer of claim 1 further comprising structural units derived from at least one alkenyl aromatic compound, or from at least one monoethylenically unsaturated alkyl (meth)acrylate monomer selected from (C_1-C_{12})alkyl(meth)acrylate monomers, or from a mixture of at least one alkenyl aromatic compound and at least one monoethylenically unsaturated alkyl (meth)acrylate monomer selected from (C_1-C_{12})alkyl(meth)acrylate monomers.

9. The polymer of claim 8 having the formula



wherein R^4 is hydrogen or alkyl, and R^5 is selected from the group consisting of an electron-donating substituent and an electron-withdrawing substituent; and y has the value of from zero up to the number of hydrogens available for substitution.

10. The polymer of claim 8 comprising structural units derived from at least one alkenyl aromatic compound selected from the group consisting of styrene, alpha-methyl styrene, 2-methylstyrene, 3-methylstyrene, 4-methylstyrene, alpha-methyl vinyltoluene, vinyl xylene, trimethyl styrene, 3,5-diethylstyrene, 4-n-propylstyrene, butyl styrene, 2-t-butylstyrene, 3-t-butylstyrene, 4-t-butylstyrene,

styrenes having from 1 to 5 halogen substituents on the aromatic ring, chlorostyrene, alpha-chlorostyrene, dichlorostyrene, tetrachlorostyrene, bromostyrene, alpha-bromostyrene, dibromostyrene, p-hydroxystyrene, p-acetoxystyrene, methoxystyrene, vinyl-substituted condensed aromatic ring structures, vinyl naphthalene, vinyl anthracene, and mixtures of alkenyl aromatic compounds.

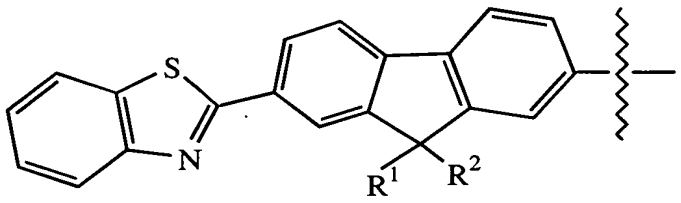
11. The polymer of claim 8 comprising structural units derived from at least one alkenyl aromatic compound, said structural units being present in a range of between about 0.5 wt.% and about 85 wt.%, based on the total weight of the polymer.

12. The polymer of claim 8 wherein the weight average molecular weight is in a range of about 4,000 and about 200,000.

13. The polymer of claim 1 which is a film.

14. The polymer of claim 8 which is a film.

15. A polymer comprising 2-(7-benzothiazolyl-9,9-disubstituted fluorene) structural units of the formula



and optionally structural units derived from at least one alkenyl aromatic compound at a level of between about 0.5 wt.% and about 85 wt.%, based on the total weight of the polymer; wherein R^1 and R^2 are the same and are selected from the group consisting of phenyl, trialkylsilyl, trimethylsilyl, t-butyl, dimethylhexyl, ethylhexyl, n-octyl, and C_6-C_{32} alkyl optionally substituted with one or more groups selected from C_1-C_6 alkyl; and wherein the polymer has a weight average molecular weight in a range of about 4,000 and about 200,000.

16. The polymer of claim 15 which is a film.

17. The polymer of claim 15 further comprising structural units derived from methyl methacrylate.

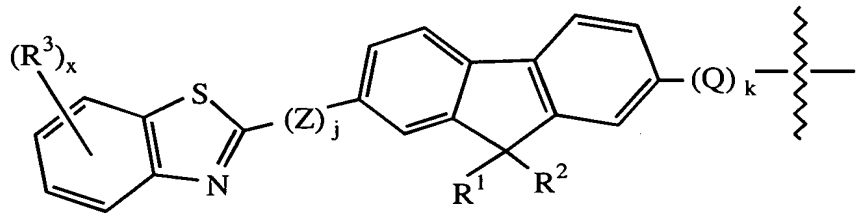
18. The polymer of claim 17 which is a film.

19. The polymer of claim 15 further comprising structural units derived from styrene.

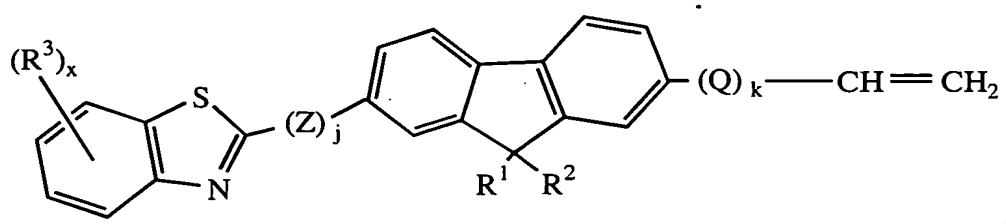
20. The polymer of claim 19 wherein structural units derived from styrene are present in a range of between about 0.5 wt.% and about 85 wt.%, based on the total weight of the polymer.

21. The polymer of claim 19 which is a film.

22. A method for making a polymer comprising 2-(7-benzothiazolyl-9,9-disubstituted fluorene) structural units of the formula



wherein R^1 and R^2 are each independently an alkyl group, an aralkyl group, an aryl group, or an $-Si(R)_3$ group wherein R is an alkyl group; R^3 is selected from the group consisting of an electron-donating substituent and an electron-withdrawing substituent; x has the value of from zero up to the number of hydrogens available for substitution on the aromatic ring; Z and Q are each independently a group which is in conjugation with both the fluorene group and the benzothiazole group; and the parameters j and k each independently have the value of 0-2; wherein the method comprises the step of polymerizing a monomer of the formula



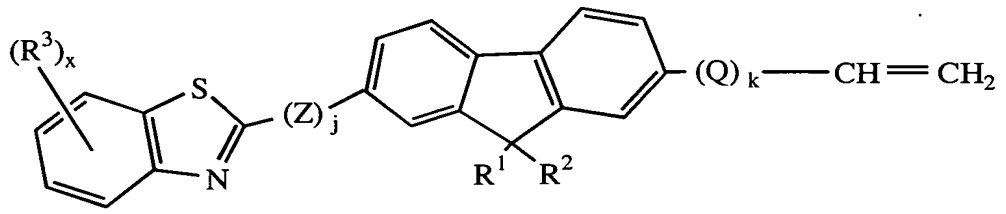
23. The method of claim 22 further comprising at least one monoethylenically unsaturated alkyl (meth)acrylate monomer selected from (C_1-C_{12})alkyl(meth)acrylate monomers present in a range of between about 0.5 wt.% and about 85 wt.%, based on the total weight of monomers.

24. The method of claim 23 wherein the alkyl (meth)acrylate monomer is methyl methacrylate.

25. The method of claim 22 further comprising at least one alkenyl monomer present in a range of between about 0.5 wt.% and about 85 wt.%, based on the total weight of monomers.

26. The method of claim 25 wherein the alkenyl monomer is styrene.

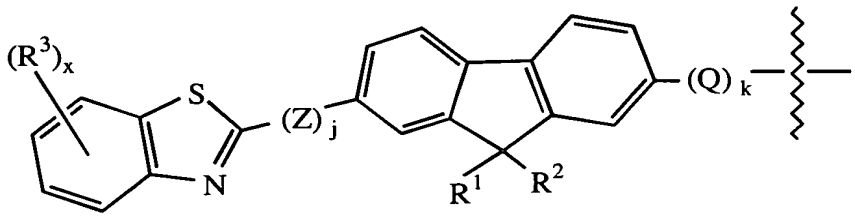
27. A vinyl compound of the formula



wherein R^1 and R^2 are each independently an alkyl group, an aralkyl group, an aryl group, or an $-Si(R)_3$ group wherein R is an alkyl group; R^3 is selected from the group consisting of an electron-donating substituent and an electron-withdrawing substituent; x has the value of from zero up to the number of hydrogens available for substitution on the aromatic ring; Z and Q are each independently a group which is in conjugation with both the fluorene group and the benzothiazole group; and the parameters j and k each independently have the value of 0-2.

28. The compound of claim 27, wherein the parameters x, j and k are zero; and R^1 and R^2 are the same and are selected from the group consisting of phenyl, trialkylsilyl, trimethylsilyl, t-butyl, dimethylhexyl, ethylhexyl, n-octyl, and C_6-C_{32} alkyl optionally substituted with one or more groups selected from C_1-C_6 alkyl.

29. An electroactive device comprising a polymer comprising 2-(7-benzothiazolyl-9,9-disubstituted fluorene) structural units of the formula



wherein R^1 and R^2 are each independently an alkyl group, an aralkyl group, an aryl group, or an $-Si(R)_3$ group wherein R is an alkyl group; R^3 is selected from the group consisting of an electron-donating substituent and an electron-withdrawing substituent; x has the value of from zero up to the number of hydrogens available for substitution on the aromatic ring; Z and Q are each independently a group which is in conjugation with both the fluorene group and the benzothiazole group; and the parameters j and k each independently have the value of 0-2.

30. The electroactive device of claim 29 wherein x is at least one and R^3 is alkyl; alkoxy; halogen, chloro, bromo, fluoro; nitrile or nitro.

31. The electroactive device of claim 29 wherein j or k, or both j and k have the value of 1, and Z or Q or both Z and Q are selected from the group consisting of phenyl, substituted phenyl, ethenyl, substituted ethenyl, and fluorenyl.

32. The electroactive device of claim 29 wherein R^1 and R^2 are each independently selected from the group consisting of phenyl, trialkylsilyl, trimethylsilyl, t-butyl, dimethylhexyl, ethylhexyl, n-octyl, and C_6-C_{32} alkyl optionally substituted with one or more groups selected from C_1-C_6 alkyl.

33. The electroactive device of claim 29 wherein x, j and k are zero, and R^1 and R^2 are the same.

34. The electroactive device of claim 33 wherein R^1 and R^2 are selected from the group consisting of phenyl, trialkylsilyl, trimethylsilyl, t-butyl, dimethylhexyl, ethylhexyl, n-octyl, and C_6-C_{32} alkyl optionally substituted with one or more groups selected from C_1-C_6 alkyl.

35. The electroactive device of claim 29 wherein the weight average molecular weight of the polymer is in a range of about 4,000 and about 200,000.

36. The electroactive device of claim 29, which is an electroluminescent device, an LED, an OLED, a photovoltaic device, a photoconductor, a photodetector, or in a chemical or biochemical sensor.

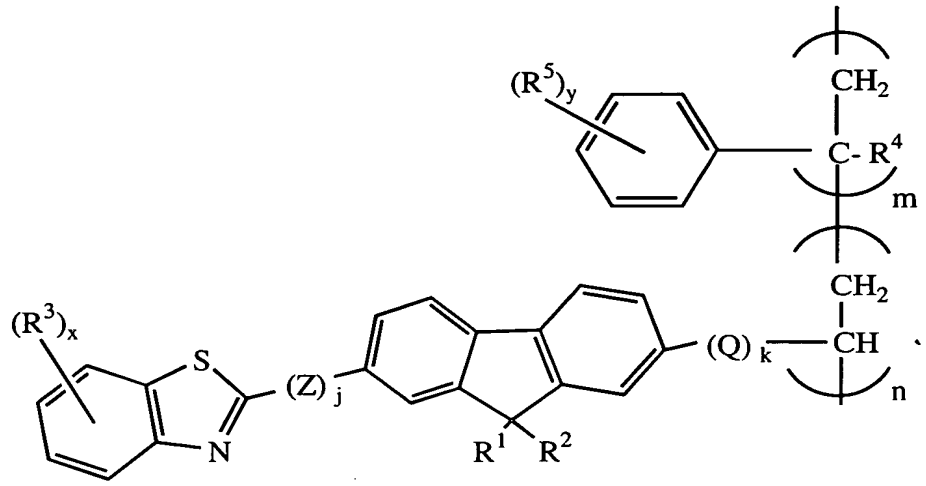
37. An electroactive device comprising: (a) an anode; (b) a cathode; and (c) a layer comprising the polymer of claim 29; wherein the layer (c) is a light emitting layer and the device emits light in the wavelength range of about 400 nm to about 650 nm; or wherein the layer (c) is a hole-blocking layer.

38. The electroactive device of claim 29 wherein the polymer further comprises structural units derived from at least one alkenyl aromatic compound, or from at least one monoethylenically unsaturated alkyl (meth)acrylate monomer selected from (C_1-C_{12})alkyl(meth)acrylate monomers, or from a mixture of at least one alkenyl aromatic compound and at least one monoethylenically unsaturated alkyl (meth)acrylate monomer selected from (C_1-C_{12})alkyl(meth)acrylate monomers.

39. The electroactive device of claim 38, which is an electroluminescent device, an LED, an OLED, a photovoltaic device, a photoconductor, a photodetector, or in a chemical or biochemical sensor.

40. An electroactive device comprising: (a) an anode; (b) a cathode; and (c) a layer comprising the polymer of claim 38; wherein the layer (c) is a light emitting layer and the device emits light in the wavelength range of about 400 nm to about 650 nm; or wherein the layer (c) is a hole-blocking layer.

41. The electroactive device of claim 38 wherein the polymer has the formula



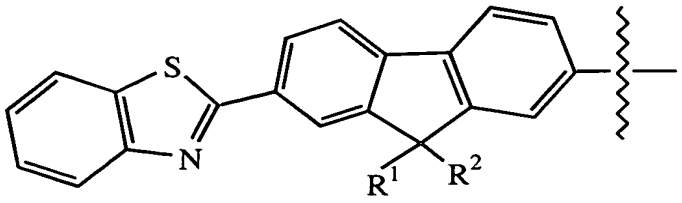
wherein R^4 is hydrogen or alkyl, and R^5 is selected from the group consisting of an electron-donating substituent and an electron-withdrawing substituent; and y has the value of from zero up to the number of hydrogens available for substitution.

42. The electroactive device of claim 38 wherein the polymer comprises structural units derived from at least one alkenyl aromatic compound selected from the group consisting of styrene, alpha-methyl styrene, 2-methylstyrene, 3-methylstyrene, 4-methylstyrene, alpha-methyl vinyltoluene, vinyl xylene, trimethyl styrene, 3,5-diethylstyrene, 4-n-propylstyrene, butyl styrene, 2-t-butylstyrene, 3-t-butylstyrene, 4-t-butylstyrene, styrenes having from 1 to 5 halogen substituents on the aromatic ring, chlorostyrene, alpha-chlorostyrene, dichlorostyrene, tetrachlorostyrene, bromostyrene, alpha-bromostyrene, dibromostyrene, p-hydroxystyrene, p-acetoxystyrene, methoxystyrene, vinyl-substituted condensed aromatic ring structures, vinyl naphthalene, vinyl anthracene, and mixtures of alkenyl aromatic compounds.

43. The electroactive device of claim 38 wherein the polymer comprises structural units derived from at least one alkenyl aromatic compound, said structural units being present in a range of between about 0.5 wt.% and about 85 wt.%, based on the total weight of the polymer.

44. The electroactive device of claim 38 wherein the weight average molecular weight of the polymer is in a range of about 4,000 and about 200,000.

45. An electroactive device comprising a polymer comprising 2-(7-benzothiazolyl-9,9-disubstituted fluorene) structural units of the formula



and optionally structural units derived from at least one alkenyl aromatic compound or from at least one monoethylenically unsaturated alkyl (meth)acrylate monomer, said optional structural units being present at a level of between about 0.5 wt.% and about 85 wt.%, based on the total weight of the polymer;

wherein R^1 and R^2 are the same and are selected from the group consisting of phenyl, trialkylsilyl, trimethylsilyl, t-butyl, dimethylhexyl, ethylhexyl, n-octyl, and C_6-C_{32} alkyl optionally substituted with one or more groups selected from C_1-C_6 alkyl; and wherein the polymer has a weight average molecular weight in a range of about 4,000 and about 200,000.

46. The electroactive device of claim 45 wherein the polymer further comprises structural units derived from methyl methacrylate.

47. The electroactive device of claim 45 wherein the polymer further comprises structural units derived from styrene.

48. The electroactive device of claim 45, which is an electroluminescent device, an LED, an OLED, a photovoltaic device, a photoconductor, a photodetector, or in a chemical or biochemical sensor.

49. An electroactive device comprising: (a) an anode; (b) a cathode; and (c) a layer comprising the polymer of claim 45; wherein the layer (c) is a light emitting layer and the device emits light in the wavelength range of about 400 nm to about 650 nm; or wherein the layer (c) is a hole-blocking layer.